

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 14

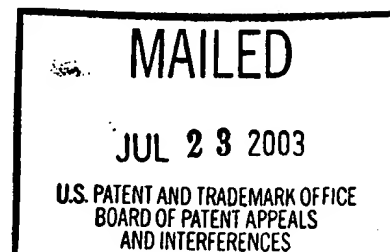
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BRIAN JOHN CRAGUN,
TODD MARK KELSEY and
STEPHEN HOLLIS LUND

Appeal No. 2001-2290
Application No. 09/004,034

ON BRIEF



Before JERRY SMITH, BARRY, and LEVY, Administrative Patent Judges.

JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-4, 7-12, 15-18, 20, 22-25 and 39. Claims 5, 6, 13, 14, 19, 21 and 26-38 were indicated to contain allowable subject matter. An amendment after final rejection was filed on July 6, 2000 and was entered by the examiner. This amendment cancelled allowed claims 27-38 from this application.

The disclosed invention pertains to an automated sales promotion selection system and to a method for dynamically identifying sales opportunities for purchases of items by

customers from an inventory of items. Specifically, the invention uses a neural network to identify items that should be suggested to a customer for additional purchase.

Representative claim 9 is reproduced as follows:

9. An apparatus comprising:
a storage unit;
a central processing unit configured to receive customer data relating to a current customer; and
a purchase advisor neural network stored in the storage unit and configured to respond to the customer data received by the central processing unit and identify a sales promotion for the current customer, wherein the response of the purchase advisor neural network for future customers is selectively adaptable by the central processing unit in response to customer data.

The examiner relies on the following reference:

Deaton et al. (Deaton)	5,649,114	July 15, 1997
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Claims 1-4, 7-12, 15-18, 20, 22-25 and 39 stand rejected under 35 U.S.C. § 103(a). As evidence of obviousness the examiner offers Deaton taken alone.

Rather than repeat the arguments of appellants or the examiner, we make reference to the briefs and the answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejection advanced by the examiner and the evidence of obviousness relied upon by the examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellants' arguments set forth in the briefs along with the examiner's

rationale in support of the rejection and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in the claims on appeal. Accordingly, we affirm.

Appellants have indicated that for purposes of this appeal the claims will stand or fall together in the following two groups: Group I has claims 1-3, 7-11, 15-18, 20 and 22-25, and Group II has claims 4, 12 and 39. Consistent with this indication appellants have made no separate arguments with respect to any of the claims within each group. Accordingly, all the claims within each group will stand or fall together. Note In re King, 801 F.2d 1324, 1325, 231 USPQ 136, 137 (Fed. Cir. 1986); In re Sernaker, 702 F.2d 989, 991, 217 USPQ 1, 3 (Fed. Cir. 1983). Therefore, we will consider the rejection against claims 9 and 12 as representative of all the claims on appeal.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one

having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See Id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976). Only those arguments actually made by appellants have been considered in this decision. Arguments which appellants could have made but chose not to make in the brief have not been considered and are deemed

to be waived by appellants [see 37 CFR § 1.192(a)].

The examiner basically finds that Deaton teaches the claimed invention except for the claimed neural network. The examiner takes "Official Notice" that neural networks were well known tools for providing analysis and determination of relationships and patterns. The examiner also notes that appellants described the training of neural networks in the admitted prior art. The examiner finds that it would have been obvious to the artisan to modify Deaton to make use of well known trained neural networks to analyze the purchases of customers and select a likely item for promotion in light of the advantages of neural networks [answer, pages 3-4].

With respect to representative, independent claim 9, appellants argue that Deaton does not teach the recitation that the response of the purchase advisor neural network for future customers is selectively adaptable in response to customer data. Appellants argue that the claim requires that the underlying rules embodied in the neural network be adapted to optimize performance of the neural network, and that Deaton does not teach adjusting the rules of the sales promotion selection system [brief, pages 4-8].

The examiner responds that the use of a neural network in Deaton would have obviously included training and retraining of the network which results in selective adaptation of the network for future customers [answer, pages 5-8]. The examiner has also

cited several prior art references which show neural networks used in business promotions in support of the taking of "Official Notice."

Appellants respond that merely asserting that it is known to adapt the response of a neural network is insufficient to support the conclusion that it would have been obvious to modify Deaton to have a response that is adaptable based on customer data. Appellants also repeat their main argument that the underlying rules in Deaton do not change as required by the claimed invention [reply brief, pages 1-3].

We will sustain the examiner's rejection of representative claim 9 and the other claims of this claim group. At the outset, we agree with the examiner that neural networks, per se, were well known in the art. As noted by the examiner, appellants admit that neural networks were known and the manner of training such networks to represent a system were also well known [specification, page 13]. We agree with the examiner that it would have been obvious to the artisan to replace the system for performing targeted marketing functions in Deaton with an equivalent neural network because of the known advantages of a neural network in adapting its output based on previous learned information. Thus, we find that it would have been obvious to the artisan to use a neural network in Deaton for performing the exact same processing as the system disclosed by Deaton.

Once it has been determined that a neural network in Deaton would have been obvious, the question still remains as to whether the Deaton system using a neural network meets the claimed invention. We do not agree with appellants' argument that the claimed invention requires that the rules of the neural network must be modified. Claim 9 recites that the response of the neural network is selectively adaptable in response to customer data. Appellants have argued that the response being adaptable means that the rules are adaptable. We do not agree that it is always necessary for the rules of a neural network be changed in order to change the response of a neural network. The response of a neural network is broadly interpreted to be nothing more than the output of the neural network. Any neural network can be trained and retrained to ensure that its output is representative of the desired result. As noted by the examiner, the output of a neural network is a function of its training which is determined by previous applied data. Any neural network can also be made adaptable to adjust its coefficient weights to produce a different response (output) based upon what is learned from previous analyzed data. These principles of neural networks can be found in any basic textbook on this subject and would be well known to the artisan.

Even if we were to accept appellants' argument that the claimed invention requires that the underlying rules of the neural network be modified, we would still reach the same result.

The computer of Deaton calculates a value from a value formula which is applied to the database of previously purchased products and shopping transaction data. This value formula is variable and is based on a customers' prior purchase volumes in the store. The sales promotion selected in Deaton is a function of this calculated value [claim 1]. Thus, the promotions in Deaton for future transactions are a function of customer data previously stored and are based on a variable value formula. When a neural network takes the place of the computer in Deaton, the variable value formula would be represented as a change in the underlying rules which determine the output of the network. Therefore, we also find that Deaton teaches that the underlying rules of a calculation are selectively adaptable in response to customer data. Thus, the response in Deaton using a neural network would be variable whether through retraining or by adapting the rules using Deaton's variable value formula as just discussed.

With respect to separately argued claim 12, appellants argue that Deaton does not teach the concept of selectively adapting membership of an item in a group responsive to customer data [brief, pages 8-9]. The examiner responds that Deaton teaches that the groupings of products can be manipulated based on any number of variables. The examiner asserts that it would have been obvious to the artisan to adjust purchase groups in order to provide more accurate promotions [answer, page 9]. Appellants respond that the adaptability of neural networks by

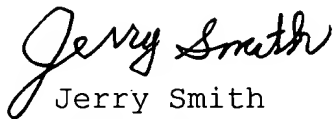
itself is insufficient to suggest the claimed invention [reply brief, page 3].

We will sustain the examiner's rejection of representative claim 12 and of claims 4 and 39 which are therewith. As noted by the examiner, Deaton teaches that the groupings of products can be manipulated based on any number of variables such as seasonality or based on any number of variables that are pertinent to the manufacturer [column 101, lines 48-56]. Deaton teaches that the shopping history of customers is maintained. We agree with the examiner that it would have been obvious to the artisan to use this previous customer information as one of the variables which is used to update the groupings of products.

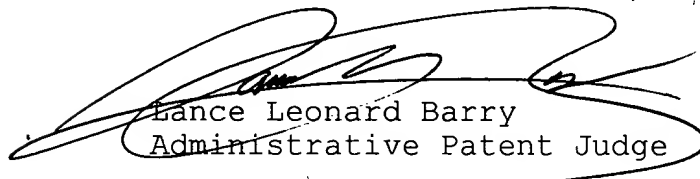
In summary, we have sustained the examiner's rejection of each of the claims on appeal. Therefore, the decision of the examiner rejecting claims 1-4, 7-12, 15-18, 20, 22-25 and 39 is affirmed.

No time period for taking any subsequent action in
connection with this appeal may be extended under 37 CFR
§ 1.136(a).

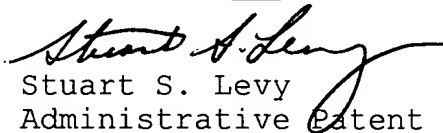
AFFIRMED



Jerry Smith
Administrative Patent Judge



Lance Leonard Barry
Administrative Patent Judge



Stuart S. Levy
Administrative Patent Judge

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